



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------------|------------------------|
| 10/529,533 | 04/19/2005 | Pierre Fayet | FRR-16006 | 4554 |
| 40854 7590 01/11/2008 RANKIN, HILL & CLARK LLP 38210 Glenn Avenue WILLOUGHBY, OH 44094-7808 | | | EXAMINER CHEN, KEATH T | |
| | | | ART UNIT 1792 | PAPER NUMBER |
| | | | MAIL DATE 01/11/2008 | DELIVERY MODE PAPER |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/529,533

Applicant(s)

FAYET ET AL.

Examiner

Keath T. Chen

Art Unit

1792

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 December 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3 and 5-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3 and 5-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

The claim amendment filed on 12/03/2007, addressing rejection of claims 1-12 from the first office action (09/07/2007), amending claims 1, 3, 6, 7, 8, and 10; and canceling claims 2 and 4, is acknowledged and will be addressed below.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
 2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
1. Claims 1, 3 and 5-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Seeser et al. (US 5879519, hereafter '519), further in view of Kuehnle (US 3884787, hereafter '787).

'519 teaches some limitations of claim 1:

A device (Fig. 15) for treating a web material (#73) in a PECVD process (reactive sputtering is a plasma CVD, col. 15, line 66 to col. 16, line 3), the device comprising: a vacuum

chamber (Fig. 2, #12, vacuum pump system, col. 6, line 38-39, Fig. 15 is one embodiment of Fig. 2) and a rotating drum (#79, col. 16, line 40), a plurality of independent rectangular magnetron electrodes (#26-28, deposition devices include magnetron #30, see Fig. 1), each magnetron electrode (#40A, the altered inverse linear magnetron, Fig. 37A, alternate embodiment of #30, col. 25, line 32-33) being powered with an alternating voltage by its own power supply unit (#242, col. 25, lines 53-55), and a plurality of gas supply lines (#57, Fig. 6, col. 26, lines 1-4; or #37 which more clearly seen in Fig. 4 and 5), the magnetron electrodes are arranged with the magnetron faces facing the circumferential surface of the drum and at a same distance the lengths of the magnetron faces extending parallel to a drum axis and the widths of the magnetron faces extending substantially tangential to the circumferential surface, and the gas supply lines extend between neighboring magnetron (#57, shown in Fig. 7, is outside of magnetron, therefore, between neighboring magnetron) and substantially parallel to the drum axis (all these are shown in Fig. 15).

'519 does not teach the other limitation of claim 1:

The drum being one of electrically grounded, electrically floating, and negatively biased.

'787 is an analogous art in the field of PECVD of flexible film (or web, col. 1, lines 20-24), particularly in providing uniform coating (col. 5, lines 5-6; '519, col. 3, lines 29-35). '787 teaches to negatively bias drum (#58, Fig. 2) for the purpose of harder deposit with lower resistivity (col. 9, lines 57-63).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to have combined '787 with '519. Specifically, to have applied negative bias, as taught by '787, to the drum (#79) to the apparatus in Fig. 15 of '519 for the purpose of harder deposit with lower resistivity.

'519 further teach the limitation of:

Claim 3: The gas supply lines extend between adjacent magnetron faces (as discussed above).

Claim 5: The supply lines (#57) comprise rows of gas outlets arranged for gas injection substantially parallel to the magnetron faces.

Claim 6: Further comprising wall elements (baffle #32, see Figs. 4 and 5, col. 28, lines 16-20) extending along the longitudinal edges of the magnetron faces and towards the rotating drum.

Claim 7: The magnetron electrode constitutes a twin magnetron (Fig. 7, two B field are shown).

Claim 8: Gas from said plurality of gas supply lines is supplied to the space between magnetron faces (gas is flowing toward vacuum system #12 through these paths, see Fig. 15 and Fig. 2) and the rotating drum is allowed to be removed in an axial direction and between adjacent magnetron faces (as shown in Fig. 15, removing drum in an axial direction and between #27 and #28 is allowed. Such movement is required for service and assembly of the transporting means).

Claim 9: The magnetron faces comprise electrode pieces of a non magnetic material (#43, stainless steel, col. 8, lines 52-54).

Claim 10: The electrode pieces (#43) of the magnetron faces comprise channels (#45, col. 8, lines 54-55) for receiving a cooling medium.

Claim 11: The magnetron electrodes constitute magnetrons of an unbalanced type (Fig. 40, alternative magnetron, col. 27, lines 23-37).

2. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over '519 and '787, further in view of Fu et al. (US 6306265, hereafter '265).

'519 and '787, together, teach all limitations of claim 1, as discussed above.

'519 further teaches permanent magnets supplying magnetic field of rectangular racetrack configuration, but is silent as to the magnetic strength of the component.

'519 and '787, together, do not explicitly teach the limitations of claim 12:

The magnetron faces comprise permanent magnetic central and peripheral poles, the central pole having a magnetic strength that is about half of a magnetic strength of the peripheral pole.

'265 is an analogous art in the field of thin film deposition (title), particular in improving sputtering magnetron design (col. 4, lines 31). '265 provides an unbalanced magnetron design (Fig. 7 and Fig. 17) with inner poles having magnetic flux less than peripheral poles by a factor of 2 (col. 11, lines 54-58), for the purpose of supporting a higher-density plasma deep into the processing area (col. 11, line 60 to col. 12, line 11).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to have combined '265 with '519 and '787. Specifically, to have adopted the magnetron design from Fig. 17 of '265 to the magnetron in Figs. 4-7 of '519, for the purpose of

supporting a higher-density plasma deep into the processing area, with a reasonable expectation of success.

Response to Arguments

Applicant's arguments filed 12/03/2007 have been fully considered and **some are persuasive:**

1. In regarding to specification objection, see 3rd paragraph of page 6, applicant's amendment overcome the objection.
2. In regarding 112 first paragraph rejection of claims 1-12, see 4th paragraph of page 6, amendment of claim 1 overcome the rejection.
3. In regarding to claim objection to claim 8, see last paragraph of page 6, applicant's amendment overcome the objection.
4. Applicant's amendment, taking out "means for" in claims 1 and 10 avoids 112 6th interpretation.

The other applicant's arguments are not persuasive:

5. In regarding to 102(b) and 103 rejections of claims 1-12 based on Ohtake ('584), see pages 7-13, applicant's argument is that amended claims overcome '584. Since the claim amendment requires a new primary reference, as discussed in the claim rejection above, the argument against '584 is irrelevant.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Keath T. Chen whose telephone number is 571-270-1870. The examiner can normally be reached on M-F, 8:30-5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Cleveland can be reached on 571-272-1418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

Application/Control Number:
10/529,533
Art Unit: 1792

Page 8

applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

KC

KC.


MICHAEL CLEVELAND
SUPERVISORY PATENT EXAMINER